G5-M4-Lesson 31

1. Estimate, and then divide.

I can think of multiplying both the dividend (89.6) and the divisor (0.8) by 10 to get 896 ÷ 8.

a. $89.6 \div 0.8 \approx 880 \div 8 = 110$

$$= \frac{89.6}{0.8}$$

I can multiply this fraction by 1, or $\frac{10}{10}$, to get a denominator that is a whole number.

$$= \frac{89.6 \times 10}{0.8 \times 10}$$

$$= \frac{896}{8}$$

$$= 112$$

I use the long division algorithm to solve 896 divided by 8. The answer is 112, which is very close to my estimated answer of 110.

$$\begin{array}{r} 1\ 1\ 2 \\ 8\overline{)\,8\ 9\ 6} \\ -\ 8 \\ \hline 0\ 9 \\ -\ \ 8 \\ \hline 1\ 6 \\ -\ 1\ 6 \\ \hline 0 \end{array}$$

I'll imagine multiplying both the dividend and the divisor by 100 to get 524 ÷ 4.

b. $5.24 \div 0.04 \approx 400 \div 4 = 100$

$$= \frac{5.24}{0.04}$$

I can multiply this fraction by 1, or $\frac{100}{100}$, to get a denominator that is a whole number.

$$= \frac{5.24 \times 100}{0.04 \times 100}$$

$$= \frac{524}{4}$$

$$= 131$$

524 divided by 4 is equal to 131.

$$\begin{array}{r} 1\ 3\ 1 \\ 4\overline{)\,5\ 2\ 4} \\ -\ 4 \\ \hline 1\ 2 \\ -\ 1\ 2 \\ \hline 0\ 4 \\ -\ \ 4 \\ \hline 0 \end{array}$$

2. Solve using the standard algorithm. Use the thought bubble to show your thinking as you rename the divisor as a whole number.

$2.64 \div 0.06 = 44$

I write a note explaining how I can rewrite the division expression from $2.64 \div 0.06$ to $264 \div 6$. Both expressions are equivalent.

I multiplied 2.64 and 0.06 by 100 to get an equivalent division expression with whole numbers.

$$2.64 \div 0.06 = \frac{264}{6}$$

$$\begin{array}{r} \quad 4\ 4 \\ 6\overline{)\ 2\ 6\ 4} \\ -\ 2\ 4 \\ \hline \quad 2\ 4 \\ -\ 2\ 4 \\ \hline \quad 0 \end{array}$$

I solve by using the long division algorithm, $264 \div 6 = 44$.